

Appl. No. 10/005,179
Amdt. Dated December 5, 2003
Reply to Office Action of September 12, 2003

Attorney Docket No. 81863.0013
Customer No.: 26021

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original): A dielectric ceramic material comprising a solid solution of which dominant crystal phase comprises a perovskite crystal, and the perovskite crystal comprises a complex oxide of at least Ba, Sr, Mg, W and a rare earth element.

2. (Original): The dielectric ceramic material according to claim 1, wherein a perovskite crystal is contained in the amount of at least 90% by volume.

3. (Original): The dielectric ceramic material according to claim 1, wherein at least Ba, Sr, Mg, W and a rare earth element are contained as metal elements, and when oxides of these metal elements are represented by $a\text{BaO} \cdot b\text{SrO} \cdot c\text{MgO} \cdot d\text{WO}_3 \cdot e\text{RE}_2\text{O}_x$ ($3 \leq x \leq 4$, RE represents a rare earth element)) in a molar ratio of the metal oxides, the factors a, b, c, d and e satisfy the following relationships:

$$0.35 \leq a \leq 0.55,$$

$$0.01 \leq b \leq 0.25,$$

$$0.10 \leq c \leq 0.30,$$

$$0.15 \leq d \leq 0.35,$$

$$0.01 \leq e \leq 0.20, \text{ and}$$

$$a + b + c + d + e = 1$$

4. (Original): The dielectric ceramic material according to claim 1, wherein the rare earth element (RE) is Yb.

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5. (Original): The dielectric ceramic material according to claim 1, wherein Mn is contained as the metal element in the amount of 0.01 to 2% by weight on MnO₂ basis.

6. (Original): A dielectric resonator comprising the dielectric ceramic material of any one of claims 1 to 5 disposed between a pair of input and output terminals, so as to function through electromagnetic coupling.

7. (New): The dielectric ceramic material according to claim 1, wherein at least Ba, Sr, Mg, W and a rare earth element are contained as metal elements, and when oxides of these metal elements are represented by $a\text{BaO} \cdot b\text{SrO} \cdot c\text{MgO} \cdot d\text{WO}_3 \cdot e\text{RE}_2\text{O}_x$ ($3 \leq x \leq 4$, RE represents a rare earth element)) in a molar ratio of the metal oxides, the factors a, b, c, d and e satisfy the following relationships:

$$0.40 \leq a \leq 0.50,$$

$$0.01 \leq b \leq 0.15,$$

$$0.15 \leq c \leq 0.25,$$

$$0.20 \leq d \leq 0.30,$$

$$0.01 \leq e \leq 0.10, \text{ and}$$

$$a + b + c + d + e = 1.$$

8. (New): The dielectric ceramic material according to claim 3, wherein, the factor a satisfies the following relationship:

$$0.40 \leq a \leq 0.50.$$

9. (New): The dielectric ceramic material according to claim 3, wherein, the factor b satisfies the following relationship:

$$0.01 \leq b \leq 0.15.$$

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10. (New): The dielectric ceramic material according to claim 3, wherein, the factor c satisfies the following relationship:

$$0.15 \leq c \leq 0.25.$$

11. (New): The dielectric ceramic material according to claim 3, wherein, the factor d satisfies the following relationship:

$$0.20 \leq d \leq 0.30.$$

12. (New): The dielectric ceramic material according to claim 3, wherein, the factor e satisfies the following relationship:

$$0.01 \leq e \leq 0.10.$$

13. (New): The dielectric ceramic material according to claim 1, wherein the rare earth element (RE) is selected from the group consisting of Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, and Yb.

14. (New): The dielectric ceramic material according to claim 1, wherein the dielectric ceramic material is polycrystal or a single crystal.

15. (New): The dielectric ceramic material according to claim 1, wherein a perovskite crystal is contained in the amount of at least 95% by volume.